

Collision at Sea between Two Navy Vessels

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During training at sea, two missile carrier vessels crashed at rather high speed on November 14, 1991. One of the vessels (*HMS Luleå*) was seriously damaged by the other (*HMS Nynäshamn*), and one conscripted seaman was killed. Both vessels had a complete crew of 29 each, 15 of whom were officers. Informal support and formal debriefing sessions were performed during the first 2 weeks. The crews of both vessels were followed by questionnaire concerning the psychological stress reactions after 1 month and 6 months. The post-traumatic symptom scale and the impact of event scale were used for assessing the psychological symptoms and reactions.

Background

The collision between the U.S. Coast Guard cutter *Cuyahoga* and the motor vessel *Santa Cruz II* resulted in psychological distress among the Coast Guard crewmen. The U.S. Navy Special Psychiatric Rapid Intervention Team (SPRINT) was activated to provide mental health services to the Coast Guard survivors and others who had been affected by the disaster. The psychiatric records of the 18 survivors were examined and summarized, and combined with anecdotal comments made by SPRINT members. The most prominent psychological reactions among the survivors were shock, anger, sadness, and guilt. Spouses of the survivors

dealt with bereavement and strove to understand their husbands' reactions.¹

Only one study has been found² that reports on social support for rescue workers after a naval mass casualty.

The Accident

In November 1991, the Swedish Royal Navy had its main training period of the year just before the leave for that year's con-

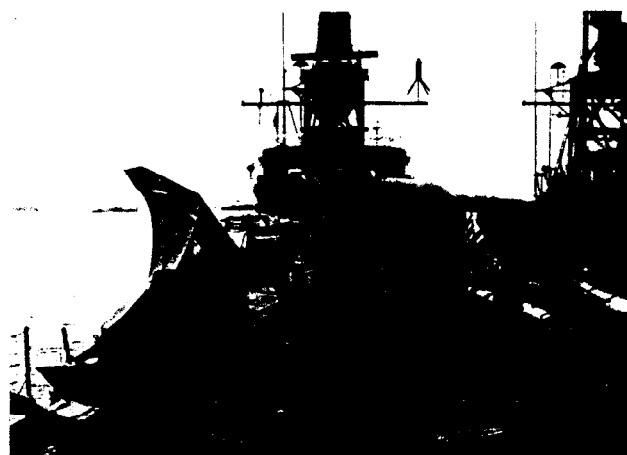


Fig. 1. The gun-turret of *HMS Luleå* (published by permission of The Swedish Armed Forces).

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TABLE I
MISSILE-BOAT COLLISION POST-TRAUMATIC STRESS SYMPTOMS AS MEASURED BY THE PTSS SCALE,
1 AND 6 MONTHS AFTER THE ACCIDENT

Stress Symptoms	Frequency after 1 Month		Sign	1 Month 6 Months (Both Crews Together)		Sign
	Luleå (N = 30)	Nynäshamn (N = 24)		(N = 54)	(N = 48)	
Sleep disorders	3.3%	4.2%	N.S.	3.8%	2.1%	N.S.
Nightmares	0	8.3	N.S.	3.8	0	N.S.
Depression	40.0	8.3	$p < 0.01$	25.9	2.0	$p < 0.001$
Startle reactions	46.7	4.2	$p < 0.001$	27.8	12.2	$p < 0.05$
Withdrawal	—	—		—	—	
Irritability	6.7	8.3	N.S.	7.4	6.1	N.S.
Affective instability	10.0	4.2	N.S.	7.4	4.1	N.S.
Guilt feelings	—	—		—	2.0	N.S.
Fear of reminders	20.0	4.2	N.S.	13.0	0	$p < 0.01$
Muscular tension	16.7	0	$p < 0.05$	9.3	0	$p < 0.05$

scripts. In the middle of the night on November 14, during training for offensive attacks, the two missile carrier vessels *HMS Luleå* and *HMS Nynäshamn* came into collision at a speed of 36 knots. One conscripted seaman in the gun-turret of *HMS Luleå* (Fig. 1) was killed. There were no other somatically injured.

Psychological Support

The organizing of psycho-social support for the officers and conscripts of the two vessels started immediately after the accident. Debriefing sessions for both crews were carried through during the day after the accident, organized by the captains, and during the next week with professional group leaders (social workers from the Staff of the Fleet). The debriefing sessions were held separately for the two ships and separately for officers and conscripts. Follow-up sessions were held 1 month later with both crews, at the time when all conscripted privates were about to leave the Navy. The officers of both vessels and the close relatives of the deceased were informally followed up and supported by the social workers for 2 years.

Method

Both crews ($N = 58$, 30 officers and 28 conscripts) were followed up at 1 and 6 months after the fatal accident by questionnaires. The frequency of stress symptoms was measured by the post-traumatic symptom scale (PTSS-10).³ All respondents completed the impact of events scale (IES-15).⁴ There were no personal interviews.

Results

The responding rate was, at the first occasion, 93.1% ($N = 54$), and 6 months later 82.8% ($N = 48$). Some interesting differences were found between the crews of the two vessels in the frequency of stress symptoms 1 month after the accident, as well as comparing the whole studied group after 1 and 6 months (Table I).

Concerning different age groups (<20, 20–24, 25–30, >30), there were no significant differences of reported stress symptoms 1 or 6 months after the accident.

The only significant ($p < 0.01$) difference between officers ($N = 26$) and conscripts ($N = 25$) was in "fear of reminders." Among conscripts, 26.9% reported such fear 1 month after the accident, compared with 0% among the officers.

The IES mean scores were generally low (Table II). The reported symptoms of intrusion were significantly more frequent among the crew of the crashed vessel (*HMS Luleå*). There was no difference between the two crews after 6 months. The impact of events scale could not reveal any differences between officers and conscripts or between age groups.

Discussion

Very few studies have been reported concerning the psychological effects of serious accidents among military personnel during training periods in time of peace.^{1,5} It was therefore of great interest to assess and follow-up the reported traumatic stress symptoms among conscripts and officers after a collision at sea between two navy vessels.

When comparing the crews of the two vessels 1 month after the accident, the significant differences concerning depression, startle reactions, and muscular tension could be interpreted as an effect

TABLE II
MISSILE-BOAT COLLISION POST-TRAUMATIC STRESS SYMPTOMS
AND REACTIONS AS MEASURED BY THE IMPACT OF EVENTS
SCALE (IES-15) (THERE WERE NO SIGNIFICANT DIFFERENCES
OVER TIME CONCERNING ANY OF THE IES DATA
REPORTED IN THIS TABLE)

	Total	Luleå (N = 29)	Nynäshamn (N = 24)	Sign
After 1 month (N = 53)				
IES-15	9.24	11.22	6.86	$p < 0.05$
IES-i	6.60	8.27	4.58	$p < 0.01$
IES-a	2.65	2.96	2.27	N.S.
After 6 months (N = 49)				
IES-15	7.49	7.93	6.96	N.S.
IES-i	5.69	5.78	5.59	N.S.
IES-a	1.80	2.15	1.36	N.S.

TABLE III
SOME RECENTLY PUBLISHED REPORTED PSYCHOLOGICAL REACTIONS AMONG MILITARY PERSONNEL,
MEASURED BY THE IMPACT OF EVENTS SCALE (IES)

Reference	Type	N	IES-15	IES-a	IES-i
Herlofsen (1992)	Surviving soldiers				
	Avalanche	15	18.5	7.9	10.6
	Reserve	15	25.7	12.8	12.9
Kosten et al. (1992)	PTSD patients, (war veterans)	57	32.0	16.8	16.1
Powell et al. (1992)	Combat-vignette exposed subjects	80	48.3	—	—
Martin et al. (1992)	Enlisted U.S. soldiers during the Gulf War				
	Exposed to trauma				
	Buddy	94	24.9	11.9	13.0
	Leader	22	25.4	11.0	14.4
	Exposed to threat	151	27.8	13.4	14.4

of being aboard the seriously damaged ship. These reactions almost disappeared within the first half year (Table I). As many as 12.2% of the whole studied group, however, reported startle reactions after 6 months. This finding is well in line with other studies concerning accident survivors⁶ and might be the result of a persisting hyperarousal effect of the intense experience of sound in connection with the crash.

The impact of events scale reflects two clusters of symptoms that are often reported as part of traumatic stress syndrome and especially the post-traumatic stress disorder (PTSD),⁷ as defined in DSM-IV,⁸ namely intrusion and avoidance. The IES might be used as a screening instrument for PTSD. However, it has been recommended to assess IES scores <20 as normal or mild reactions.⁹ The reported IES scores are low and reflect the experiences of intrusion among the crew of HMS Luleå. Compared with the findings reported by Herlofsen,⁵ the scores are extremely low. In that accident, however, half of the section, 15 soldiers, were killed in an avalanche. Among war veterans,¹⁰ combat¹¹ or trauma-exposed,¹² the IES scores were significantly higher (Table III).

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